

The brick will weigh about 1800 kg per cubic meter; therefore

the volume occupied will be

Reversal Period			
20 Minutes	30 Minutes		
1200 Seconds	1800 Seconds		
For gas:			
20 min. period,	$26,667 \times 1800$, cu m	14.32	
30 min. period,	$40,000 \times 1800$, cu m.....	22.23	
For air:			
20 min. period,	$63,800 \times 1800$, cu m	35.45	
30 min. period,	$95,680 \times 1800$, cu m.....	53.13	
Increase in temp, in checkerwork, degrees		Gas	Air
Gas: $1200 - 600 = \dots\dots\dots$		600	
Air: $1200 - 300 = \dots\dots\dots$		900	
Average temp, in checkerwork, degrees:			
Gas: $(1200 + 600) \div 2 = \dots\dots\dots$		900	
Air: $(1200 + 300) \div 2 = \dots\dots\dots$		750	
Average time in checkerwork, seconds:			
At 100° increase in temp, per second.		6	9
At 200° increase in temp, per second.		3	
		4.5	
Gas: Aver, volume per sec, at 900° , m^3 ,			
$1.75X(1+ai) = \dots\dots\dots$		7.53	
Air: Aver, volume per sec. at 750° , m^3 ,			
$3.273X(1+at) = \dots\dots\dots$		12.28	
With 200° per second increase			
in temp.,			
the volume required for the			
passes will			
be, cu m.			
Gas: $7.53X3 = \dots\dots\dots$		22.59	
Air: $12.28X4.5 = \dots\dots\dots$		55.26	

With a temperature rise of 100° per second the volume required

for the passes will be double the above.

Fig. 153 shows that with the usual period between reversals there will be no economy in increasing the thickness of the checker brick over 2.5 in (63 mm), which is a standard shape.

The volume occupied by the checker brickwork will be the sum of the brick volume added to the pass volume, and requires no explanation. With a different producer gas and a different air proportion there would be a corresponding change in, the amount of heat interchange required and in the volumes required for the brickwork and for the passes.

The height of the checkerwork should be made as great as